[0390] **FIG. 23E** is a goggle type display (head mounted display), containing a main body **2401**, a display portion **2402**, an arm portion **2403** and a sensor portion **2404**. The present invention can be used in the display portion **2402** and the arm portion **2403**. In the **FIG. 23**E, while a sensor portion **2404** is provided in an arm portion **2403**, the present invention is not limited to the structure. The sensor portion **2404** can be provided in a row with the display portion **2402**.

[0391] **FIG. 23F** is a personal computer, containing a main body **2501**, a casing **2502**, a display portion **2503**, a keyboard **2504** and a sensor porting **2505**. The EL display device of the present invention can be used in the display portion **2503** and a sensor portion **2505**.

[0392] Note that in the future if the emission luminance of EL materials becomes higher, the projection of light including output images can be enlarged by lenses or the like. Then it will become possible to use the EL display device of the present invention in a front type or a rear type projector.

[0393] The above electronic devices are becoming more often used to display information provided through an electronic transmission circuit such as the Internet or CATV (cable television), and in particular, opportunities for displaying animation information are increasing. The response speed of EL materials is extremely high, and therefore the EL display device is favorable for performing animation display.

[0394] The emitting portion of the EL display device consumes power, and therefore it is preferable to display information so as to have the emitting portion become as small as possible. Therefore, when using the EL display device in a display portion which mainly displays character information, such as a portable information terminal, in particular, a portable telephone and an audio reproducing device, it is preferable to drive it by setting non-emitting portions as background and forming character information in emitting portions.

[0395] **FIG. 24A** is a portable telephone, containing a main body **2601**, an audio output portion **2602**, an audio input portion **2603**, a display portion **2604**, operation switches **2605**, an antenna **2606** and a sensor **2607**. The EL display device of the present invention can be used in the display portion **2604** and the sensor **2607**. Note that by displaying white characters in a black background in the display portion **2604**, the power consumption of the portable telephone can be reduced.

[0396] **FIG. 24B** is an audio reproducing device, specifically a car audio system, containing a main body **2701**, a display portion **2702**, and operation switches **2703**, **2704** and a sensor portion **2705**. The EL display device of the present invention can be used in the display portion **2702** and a sensor portion **2705**. Furthermore, an audio reproducing device for a car is shown in this embodiment, but it may also be used for a mobile type and a domestic type of audio reproducing device. Note that by displaying white characters in a black background in the display portion **2704**, the power consumption can be reduced. This is particularly effective in a mobile type audio reproducing device.

[0397] The range of applications of the present invention is thus extremely wide, and it is possible to apply the present invention to electronic devices in all fields. Furthermore, any constitution of the EL display device shown in Embodiments 1 to 12 may be employed in the electronic devices of this embodiment.

[0398] According to the present invention, even if the speed of deterioration of an EL layer is influenced by factors such as the structure of a device driving an EL display, the properties of an EL material structuring the EL layer, an electrode material, the conditions in the manufacturing process, and a method of driving the EL display, an EL display capable of displaying a clear image having a desired color can be provided.

[0399] Further, by forming a display EL element and a sensor EL element at the same conditions and at the same time, the speed of deterioration of the EL layers of the display EL element and of the sensor EL element can be made the same. Therefore, the luminance of the sensor EL element which a light receiving diode detects becomes very close to the luminance of the display EL element, and changes in the luminance of the display EL element can be more accurately detected, making it possible to correct to obtain desired luminance.

[0400] Furthermore, when a sensor portion is formed on a substrate at the same time as a display portion, a process of manufacturing an EL display has only an additional step of forming the light receiving diode, compared to a case of not forming the sensor portion. It is therefore not necessary to have a considerable increase in the number of manufacturing steps, and it is possible to suppress the number of manufacturing processes.

[0401] Note that by using a portion of the display portion as the sensor portion, the space for forming the sensor portion can be curtailed compared to a case of not including the sensor portion in the display portion, and therefore the size of the EL display can be reduced.

What is claimed is:

1. A semiconductor display device having a display portion and a sensor portion, wherein:

said display portion includes a plurality of display pixels;

said sensor portion includes at least one sensor pixel;

each of said plurality of display pixels and said sensor pixel has an EL element;

said sensor pixel has a light receiving diode; and

a luminance of each of the EL elements in said plurality of display pixels is controlled by the amount of a current flowing in said light receiving diode.

2. A semiconductor display device according to claim 1, wherein said EL element emits the color red, green, or blue.

3. A semiconductor display device according to claim 1, wherein said EL element comprises an anode, a cathode, and an EL layer sandwiched therebetween, and wherein said EL layer comprises a low molecular organic material or a polymer organic material.

4. A semiconductor display device according to claim 3, wherein said low molecular organic material is made of Alq_3 (tris-8-quinolilite-aluminum) or TPD (triphenylamine derivative).